

'*Duodenibacillus massiliensis*' gen. nov., sp. nov., a new species identified in human duodenum

M. Mailhe¹, D. Ricaboni^{1,3}, A. Benezech², J.-C. Lagier¹, P.-E. Fournier¹ and D. Raoult¹

1) Aix-Marseille Université, URMITE, UM63, CNRS7278, IRD198, Inserm 1095, Institut Hospitalo-Universitaire Méditerranée-Infection, Faculté de médecine, 2) Service de Gastroentérologie, Hôpital Nord, Assistance Publique-Hôpitaux de Marseille, Marseille, France and 3) Département des sciences cliniques et biomédicales, Luigi Sacco, Division des Maladies Infectieuses III, Université de Milan, Milan, Italy

Abstract

We present here the main characteristics of '*Duodenibacillus massiliensis*' strain Marseille-P2968, which was isolated from a human duodenum liquid sample of a 60-year-old man.

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Corresponding author: D. Raoult, Aix-Marseille Université, URMITE, UM63, CNRS7278, IRD198, Inserm 1095, Institut Hospitalo-Universitaire Méditerranée-Infection, Faculté de médecine, 27 Boulevard Jean Moulin, 13385, Marseille cedex 05, France
E-mail: didier.raoult@gmail.com

In March 2016, the culturomics approach [1] allowed us to study the gut microbiota from stored digestive samples. A bacterial strain was isolated from a duodenum sample of a 60-year-old man who underwent endoscopy for investigation of iron-deficiency anaemia. The patient provided signed informed consent after receiving clear information. The ethics committee of the Institut Fédératif de Recherche IFR48 validated the study under number 2016-010.

The initial growth of strain Marseille-P2968 was obtained after a 7-day preincubation in an anaerobic blood culture bottle (BD BACTEC, Plus Anaerobic/F Media, Le Pont de Claix, France) previously supplemented with 5 mL of sheep's blood and 5 mL of 0.2 µm filtered rumen. The culture of this enriched liquid medium was performed in Columbia agar with 5% sheep's blood (bioMérieux, Marcy l'Etoile, France), then incubated in an anaerobic atmosphere (anaeroGEN Compact, Oxoid, Thermo Scientific, Dardilly, France) at 37°C for 2 days. Agar-grown microcolonies were circular and white, with a mean diameter of 0.05 mm. Bacterial cells were Gram-positive bacilli, ranging in

length from 0.6 to 1.2 µm and in width from 0.3 to 0.5 µm. Strain Marseille-P2968 was motile and non-spore forming, and it exhibited no catalase or oxidase activities.

This strain could not be identified by our matrix-assisted desorption ionization–time of flight mass spectrometry (MALDI-TOF MS) screening (Microflex LT; Bruker Daltonics, Bremen, Germany) [2], so the 16S rRNA gene was sequenced using fD1-rP2 primers as previously described [3] using a 3130-XL sequencer (Applied Biosciences, Saint Aubin, France). Strain Marseille-P2968 exhibited a 92.7% sequence identity with *Sutterella parvivirus* YIT 11816^T (GenBank accession no. AB300989), the phylogenetically closest species with standing in nomenclature (Fig. 1) [4]. *Sutterella parvivirus* was first isolated from human faeces in 2008 [5].

Because of a 16S rRNA sequence divergence >5% [6] with its phylogenetically closest species with standing in nomenclature, we propose the creation of the new genus '*Duodenibacillus*' gen. nov. (duo.de.ni.ba.cil'lus, N.L. masc. n., 'a bacillus from the duodenum,' the organ from which the strain was isolated for the first time). '*Duodenibacillus massiliensis*' gen. nov., sp. nov. (mas.si.li.en'sis, L. fem. adj., from *massiliensis*, for Massilia, the Latin name of Marseille, where the strain was first cultivated), is classified as a member of the *Sutterellaaceae* family in the *Proteobacteria* phylum. Strain Marseille-P2968^T is the type strain of the new species *Duodenibacillus massiliensis* gen. nov., sp. nov.

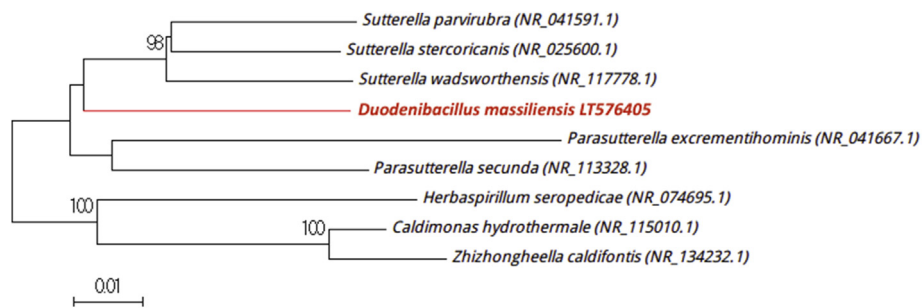


FIG. 1. Phylogenetic tree showing position of 'Duodenibacillus massiliensis' strain Marseille-P2968^T relative to other phylogenetically close neighbours. Sequences were aligned using Muscle v3.8.3.1 with default parameters, and phylogenetic inferences were obtained using neighbour-joining method with 1000 bootstrap replicates within MEGA6 software. Only bootstrap values >95% are shown. Scale bar represents 1% nucleotide sequence divergence.

MALDI-TOF MS spectrum

The MALDI-TOF MS spectrum of 'Duodenibacillus massiliensis' strain Marseille-P2968^T is available online (<http://www.mediterranean-infection.com/article.php?laref=256&titre=urms-database>).

Nucleotide sequence accession number

The 16S r RNA gene sequence was deposited in GenBank under accession number LT576405.

Deposit in a culture collection

Strain Marseille-P2968^T was deposited in the Collection de Souches de l'Unité des Rickettsies (CSUR, WDCM 875) under number P2968.

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Conflict of Interest

None declared.

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